

Application No. 10/643,330
AMENDMENT E

Remarks

The Examiner is respectfully requested to enter this amendment (claims 14, 16, and 17 of which of which were previously not entered), reexamine the application and allow claims 14, 16, 17, and 34-46 in view of the following points.

Interview

The undersigned thanks the Examiner for his courtesy and helpful remarks during the telephone interview on August 5, 2005, respecting this application. The applicants discussed the Gillespie reference of record, as well as "Cremation FAQ" (an article discussing conventional cremation conditions), and presented substantially the following arguments for patentability. While no agreement was reached on allowable claims, the Examiner agreed to reconsider his position in view of a written submission of the points raised.

The Examiner also suggested modifying the broadest claim by specifying carbon recovery process conditions more specific than what are described in the Gillespie prior art of record.

Getting Carbon from Cremated Remains is Surprising: Cremation Intentionally Destroys Carbon

As the applicant explained in detail in previous responses, none of the prior art of record provides an enabling disclosure of the present claimed process for extracting enough carbon from already-cremated remains to make a diamond, as recited in claim 14. This process is counter-intuitive to those skilled in the art, who know that the cremation process is deliberately carried out in a manner (abundant oxygen, high temperature of about 1400°F to 1800°F, long process) that is understood in the art to remove all the burnable material that can be extracted, particularly carbon. The previously-filed article, "Cremation FAQ," reinforces this point and describes these conventional cremation conditions. Page 2 of Cremation FAQ states, for example:

"What happens during the cremation process? The casket or container is placed in the cremation chamber, where the temperature is raised to approximately 1400 degrees to 1800 degrees Fahrenheit. After approximately 2 to 2 ½ hours, all organic matter is consumed by heat or evaporation. The remaining bone fragments are known as cremated remains."

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Claim 14 in essence is original claim 15 rewritten in independent form. Claim 14 is distinguished from the cited prior art by its requirement that the "residual carbon [is collected] from said cremated human or animal remains by purifying said cremated human or animal remains in the presence of additional carbon from another source." Claims 34-46 contain a similar limitation. No such process involving sacrificial carbon is disclosed in the Gillespie or Hunter prior art. Dr. Froberg's Second Declaration of March 3, 2004, provides evidence of a surprising discovery by the present inventors that contacting the remains with sacrificial carbon from another source increases the amount of carbon retrieved from the original remains. See, for example, Paragraphs 9, 10, 11, and 14.

Support for Amendments

Claim 14, reciting "purifying said cremated human or animal remains in the presence of additional carbon from another source," is supported in paragraph [0035] of the specification as published (US 2004/0031434 A1), which states in relevant part, "In another alternative embodiment of the invention, the remains can be cremated conventionally, mixed with additional carbon from another source, and purified as described above. * * * It is further contemplated that the added carbon will serve to assist in separation or preservation of the original carbon from the conventionally cremated remains as the remains and added carbon are purified."

Claim 34, reciting "providing cremated human or animal remains," is supported in paragraph [0035] of the specification, which states in relevant part, "the remains can be cremated conventionally," and paragraph [0019] of the specification, which states in relevant part, "It is another object of the present invention to provide a synthetic gem to be used in a memorial or funeral service for a deceased human or animal."

Claim 34, reciting "contacting the cremated remains with additional carbon," is supported in paragraph [0035] of the specification, which states in relevant part, "remains can be cremated conventionally, mixed with additional carbon from another source, and purified as described above."

Claim 34, reciting "purifying the cremated remains while the cremated remains are in contact with said additional carbon, yielding purified carbon derived at least in part from said cremated remains," is supported in paragraph [0035] of the specification, which states in relevant

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part, "remains can be cremated conventionally, mixed with additional carbon from another source, and purified as described above. It is contemplated that, using this technique, a gem containing at least some of the original carbon from the cremated remains can be prepared."

Claim 34, reciting "converting said purified carbon derived at least in part from said cremated remains to diamond," is supported in paragraph [0035] of the specification, which states in relevant part, "It is contemplated that, using this technique, a gem containing at least some of the original carbon from the cremated remains can be prepared."

Claim 35, reciting "said cremated human or animal remains are the result of cremation at conventional conditions," is supported in paragraph [0035] of the specification, which states in relevant part, "In another alternative embodiment of the invention, the remains can be cremated conventionally."

Claim 36, reciting "said conventional conditions include a temperature of 1400 degrees to 1800 degrees Fahrenheit (760 to 980 degrees C)," is supported in paragraph [0035] of the specification, which states in relevant part, "the remains can be cremated conventionally," as understood by a person of ordinary skill in the art. Such a person knows, as stated by the second page of the "Cremation FAQ" publication of record in this application, "What happens during the cremation process? The casket or container is placed in the cremation chamber, where the temperature is raised to approximately 1400 degrees to 1800 degrees Fahrenheit. After approximately 2 to 2 ½ hours, all organic matter is consumed by heat or evaporation. The remaining bone fragments are known as cremated remains." The MPEP authorizes an amendment to specify a "conventional condition[]" recited in the specification as originally filed. "The mere inclusion of dictionary or art recognized definitions known at the time of filing an application would not be considered new matter." Manual of Patent Examining Procedure, 8th ed., 3d Rev., Section 2163.07 (August 2005). Using a conventional conversion,

$$\text{Degrees C} = (\text{Degrees F} - 32) \times 5/9$$

and rounding off to leave the same number of significant figures after the conversion, 1400 degrees to 1800 degrees Fahrenheit is 760 to 980 degrees C.

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Claim 37, reciting "said conventional conditions include the presence of oxygen," is supported in paragraph [0010] of the specification, which states in relevant part, "typical cremation in the presence of oxygen."

Claim 38, reciting "said cremated remains as provided have been reduced to ashes," is supported in paragraph [0007] of the specification, which states in relevant part, "old cremation methods reduce human remains to ashes"

Claim 39, reciting "said cremated remains at the providing step consist essentially of bone ash and a small amount of carbon," is supported in paragraph [0007] of the specification, which states in relevant part, "old cremation methods reduce human remains to ashes, typically consisting of bone ash and small amounts of elements including carbon."

Claim 40, reciting "the cremated remains at the providing step are light gray in color," is supported in paragraph [0007] of the specification, which states in relevant part, "The ashes that remain from old cremation methods are typically light gray in color."

Claim 41, reciting "the purifying step is a halogen purification technique," is supported in paragraph [0036] of the specification, which states in relevant part, "In the preferred embodiment, the remains are then purified and graphitized using the Halogen Purification technique."

Claim 42, reciting "the halogen purification technique is carried out by heating the remains in a furnace in the presence of chlorine gas under conditions effective to remove essentially all materials but carbon from the cremated remains," is supported in paragraph [0036] of the specification, which states in relevant part, "In the preferred embodiment, the remains are then purified and graphitized using the Halogen Purification technique. This is done by placing the remains in a High Temperature Vacuum Induction Furnace. The High Temperature Vacuum Induction Furnace utilizes vacuum pressure in the range of 30 torr to 500 torr and a temperature up to 3000 degrees Centigrade. Chlorine gas is injected into the furnace, and reacts with the impurities to form chlorides. The impurities leave the carbon in the form of chloride gases. After the impurities have been removed, the carbon that remains can be pure within 10 ppm."

Claim 43, reciting "the conditions of the halogen purification technique are also effective to graphitize said carbon," is supported in paragraph [0036] of the specification, which states in

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relevant part, "In addition to being pure within 10 ppm, the carbon also becomes graphitized by the high temperatures."

Claim 44, reciting "said converting step is carried out by crystal growth sublimation," is supported in paragraph [0037] of the specification, which states in relevant part, "In the preferred embodiment, the process of crystal growth from sublimation is used In the preferred embodiment, the purified/graphitized carbon from human remains is used to replace or supplement purified/graphitized carbon of other origin, and processed into synthetic diamonds."

Claim 45, reciting "said converting step is carried out under conditions effective to form a diamond gemstone," is supported in paragraph [0037] of the specification, which states in relevant part, "In the preferred embodiment, the process of crystal growth from sublimation is used In the preferred embodiment, the purified/graphitized carbon from human remains is used to replace or supplement purified/graphitized carbon of other origin, and processed into synthetic diamonds."

Claim 46, reciting "faceting said diamond gemstone," is supported in paragraph [0038] of the specification, which states in relevant part, "In the preferred embodiment, the synthetic diamond may be a gem-quality diamond that can be faceted and polished utilizing conventional faceting and polishing techniques, which are well-known in the art."

Therefore, this application contains no new matter.

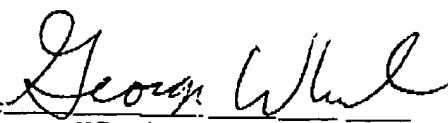
Conclusion

For the stated reasons, claims 14, 16, 17, and 34-46 are patentable and should be allowed immediately.

Please charge any additional fees or credit overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Respectfully submitted,

November 10, 2005


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FROM McANDREWS, HELD, & MALLOY

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